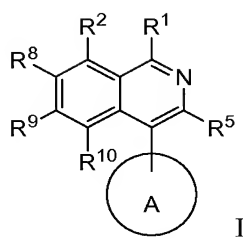


Amendments to the Claims

1-6 (Canceled)

7. (Currently Amended)

A compound of formula I



or a pharmaceutically acceptable salt, wherein:

A is

a) an aryl ring selected from phenyl, wherein any stable phenyl ring atom is independently unsubstituted or substituted with

1) halogen,

2) NO₂,

3) CN,

4) CR⁴⁶=C(R⁴⁷R⁴⁸)₂,

5) C≡C R⁴⁶,

6) (CRⁱR^j)_TOR⁴⁶,

7) (CRⁱR^j)_TN(R⁴⁶R⁴⁷),

8) (CRⁱR^j)_TC(O)R⁴⁶,

9) (CRⁱR^j)_TC(O)OR⁴⁶,

10) (CRⁱR^j)_TR⁴⁶,

11) (CRⁱR^j)_TS(O)₀₋₂R⁶¹,

12) (CRⁱR^j)_TS(O)₀₋₂N(R⁴⁶R⁴⁷),

13) OS(O)₀₋₂R⁶¹,

14) N(R⁴⁶)C(O)R⁴⁷,

15) N(R⁴⁶)S(O)₀₋₂R⁶¹,

16) (CRⁱR^j)_TN(R⁴⁶)R⁶¹,

17) (CRⁱR^j)_TN(R⁴⁶)R⁶¹OR⁴⁷,

18) (CRⁱR^j)_TN(R⁴⁶)(CR^kR^l)_SC(O)N(R⁴⁷R⁴⁸),

19) N(R⁴⁶)(CRⁱR^j)_TR⁶¹,

20) $N(R^{46})(CR^iR^j)_rN(R^{47}R^{48})$,

21) $(CR^iR^j)_rC(O)N(R^{47}R^{48})$,

22) oxo,

b) a heteroaryl ring selected from the group consisting of pyridine, pyrimidine, pyrazine, pyridazine, indole, pyrrolopyridine, benzimidazole, benzoxazole, benzothiazole, and benzoxadiazole

wherein any stable S heteroaryl ring atom is unsubstituted or mono- or di-substituted with oxo, and any stable C or N heteroaryl ring atom is independently unsubstituted or substituted with

1) halogen,

2) NO_2 ,

3) CN,

4) $CR^{46}=C(R^{47}R^{48})_2$,

5) $C\equiv C R^{46}$,

6) $(CR^iR^j)_rOR^{46}$,

7) $(CR^iR^j)_rN(R^{46}R^{47})$,

8) $(CR^iR^j)_rC(O)R^{46}$,

9) $(CR^iR^j)_rC(O)OR^{46}$,

10) $(CR^iR^j)_rR^{46}$,

11) $(CR^iR^j)_rS(O)_{0-2}R^{61}$,

12) $(CR^iR^j)_rS(O)_{0-2}N(R^{46}R^{47})$,

13) $OS(O)_{0-2}R^{61}$,

14) $N(R^{46})C(O)R^{47}$,

15) $N(R^{46})S(O)_xR^{61}$,

16) $(CR^iR^j)_rN(R^{46})R^{61}$,

17) $(CR^iR^j)_rN(R^{46})R^{61}OR^{47}$,

18) $(CR^iR^j)_rN(R^{46})(CR^kR^l)_sC(O)N(R^{47}R^{48})$,

19) $N(R^{46})(CR^iR^j)_rR^{61}$,

20) $N(R^{46})(CR^iR^j)_rN(R^{47}R^{48})$,

21) $(CR^iR^j)_rC(O)N(R^{47}R^{48})$, or

22) oxo, or

c) a 4-, 5- or 6-membered heterocyclic ring containing 1 or 2 nitrogen atoms, unsubstituted, mono-substituted or di-substituted with C_1-C_6 alkyl;

Y is CH_2 , NR^{53} , $NC(O)R^{53}$, $S(O)_{0-2}$ or O;

G is H_2 or O;

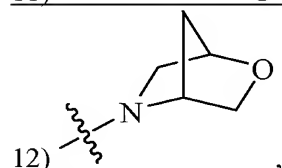
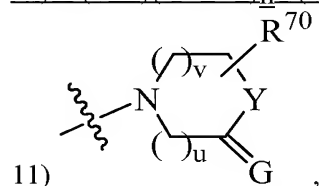
R^a, R^b, Rⁱ, R^j, R^k, and R^l are independently selected from the group consisting of:

- 1) hydrogen,
- 2) C₁-C₆ alkyl,
- 3) halogen,
- 4) aryl,
- 5) R⁸⁰,
- 6) C₃-C₁₀ cycloalkyl, and
- 7) OR⁴,

said alkyl, aryl, and cycloalkyl being unsubstituted, monosubstituted with R⁷, disubstituted with R⁷ and R¹⁵, trisubstituted with R⁷, R¹⁵ and R¹⁶, or tetrasubstituted with R⁷, R¹⁵, R¹⁶ and R¹⁷;

R^l is independently selected from:

- 1) hydrogen,
- 2) halogen,
- 3) CN,
- 4) OR⁴⁰,
- 5) N(R⁴⁰R⁴¹),
- 6) C(O)OR⁴⁰,
- 7) R⁸¹,
- 8) S(O)₀₋₂R⁶,
- 9) N(R⁴⁰)(CR^aR^b)_nR⁶, wherein R⁶ = R⁸³,
- 10) N(R⁴⁰)(CR^aR^b)_nN(R⁴¹R⁴²),



- 13) C(O)N(R⁴¹R⁴²), and
- 14) a 4-, 5-, or 6-membered heterocyclic ring containing 1 nitrogen atom,
unsubstituted, or mono-, di- or tri-substituted with -OH.

R², R⁸, and R¹⁰ are independently selected from hydrogen and halogen;:

R⁹ is OCH₃ or OCHF₂.

R⁴, R⁴⁰, R⁴¹, R⁴², R⁴⁶, R⁴⁷, R⁴⁸, R⁴⁹, R⁵⁰, R⁵¹, R⁵², and R⁵³ are independently selected from:

- 1) hydrogen,
- 2) C₁-C₆ alkyl,
- 3) C₃-C₁₀ cycloalkyl,
- 4) aryl,
- 5) R⁸¹,
- 6) CF₃,
- 7) C₂-C₆ alkenyl, and
- 8) C₂-C₆ alkynyl,

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R¹⁸, di-substituted with R¹⁸ and R¹⁹, tri-substituted with R¹⁸, R¹⁹ and R²⁰, or tetra-substituted with R¹⁸, R¹⁹, R²⁰ and R²¹;

R⁵ is independently selected from:

- 1) hydrogen,
- 2) halogen,
- 3) CN,
- 4) C(O)N(R⁴⁹R⁵⁰),
- 5) C(O)OR⁴⁹,
- 6) S(O)₀₋₂N(R⁴⁹R⁵⁰),
- 7) S(O)₀₋₂R⁶²,
- 8) C₁-C₆ alkyl,
- 9) C₃-C₁₀ cycloalkyl,
- 10) R⁸²,

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R²², di-substituted with R²² and R²³, tri-substituted with R²², R²³ and R²⁴, or tetra-substituted with R²², R²³, R²⁴ and R²⁵;

R⁶, ~~R⁶⁰~~, R⁶¹, R⁶² and R⁶³ are independently selected from:

- 1) C₁-C₆ alkyl,
- 2) aryl,
- 3) R⁸³, and
- 4) C₃-C₁₀ cycloalkyl;

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R²⁶, di-substituted with R²⁶ and R²⁷, tri-substituted with R²⁶, R²⁷ and R²⁸, or tetra-substituted with R²⁶, R²⁷, R²⁸ and R²⁹;

R⁷, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵, R²⁶, R²⁷, R²⁸, R²⁹, and R⁷⁰ are independently selected from:

- 1) C₁-C₆ alkyl,
- 2) halogen,

- 3) OR⁵¹,
- 4) CF₃,
- 5) aryl,
- 6) C₃-C₁₀ cycloalkyl,
- 7) R⁸⁴,
- 8) S(O)₀₋₂N(R⁵¹R⁵²),
- 9) C(O)OR⁵¹,
- 10) C(O)R⁵¹,
- 11) CN,
- 12) C(O)N(R⁵¹R⁵²),
- 13) N(R⁵¹)C(O)R⁵²,
- 14) S(O)₀₋₂R⁶³,
- 15) NO₂, and
- 16) N(R⁵¹R⁵²);

R⁸⁰, R⁸¹, R⁸², R⁸³ and R⁸⁴ are independently selected from a group of unsubstituted or substituted heterocyclic rings consisting of a 4-6 membered unsaturated or saturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting N, O and S, and a 9- or 10-membered unsaturated or saturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting or N, O or S;

n, r, s and t are independently 0, 1, 2, 3, 4, 5 or 6;

u is 0, 1 or 2; and

v is 0, 1 or 2, wherein said compound is selected from the group consisting of

[(6-methoxy-4-phenylisoquinolin-3-yl)methyl]dimethylamine,
1-(1-chloro-6-methoxy-4-phenylisoquinolin-3-yl)-N,N-dimethylmethanamine,
{[6-methoxy-1-(methylthio)-4-phenylisoquinolin-3-yl]methyl} dimethylamine,
[6-methoxy-1-(methylsulfonyl)-4-phenylisoquinolin-3-yl]methyl(dimethyl)amine oxide,
1-[6-methoxy-1-(methylsulfonyl)-4-phenylisoquinolin-3-yl]-N,N-dimethylmethanamine,
3-[(dimethylamino)methyl]-6-methoxy-4-phenylisoquinoline-1-carbonitrile,
2,3-Dimethyl-6-methoxy-4-phenylisoquinolinium hydroxide,
6-methoxy-1-(2-methoxyethoxy)-3-methyl-4-phenylisoquinoline,
{3-[(6-methoxy-3-methyl-4-phenylisoquinolin-1-yl)oxy]propyl} amine,

2-[(6-methoxy-3-methyl-4-phenylisoquinolin-1-yl)amino]ethanol,
6-methoxy-3-methyl-1-(methylsulfonyl)-4-phenylisoquinoline,
6-methoxy-N-(2-methoxyethyl)-3-methyl-4-phenylisoquinolin-1-amine,
N-(6-methoxy-3-methyl-4-phenylisoquinolin-1-yl)ethane-1,2-diamine,
6-methoxy-3-methyl-4-phenylisoquinoline,
N-(3,4-dimethoxybenzyl)-6-methoxy-3-methyl-4-phenylisoquinolin-1-amine,
6-methoxy-3-methyl-4-phenylisoquinolin-1-amine,
1-(ethylsulfonyl)-6-methoxy-3-methyl-4-phenylisoquinoline,
1-(benzylsulfonyl)-6-methoxy-3-methyl-4-phenylisoquinoline,
6-methoxy-3-methyl-4-phenyl-1-(phenylsulfonyl)isoquinoline,
6-methoxy-3-methyl-4-phenylisoquinoline-1-carbonitrile,
3-tert-butyl-6-methoxy-1-(2-methoxyethoxy)-4-phenylisoquinoline,
1-chloro-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
6-methoxy-4-phenylisoquinoline-1,3-dicarbonitrile,
1-(allyloxy)-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1-(2,3-dihydroxypropoxy)-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
(allylamino)-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
(+/-)-1-[(2,3-dihydroxypropyl)amino]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- {[(2S)-2,3-dihydroxypropyl]amino } -6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- {[(2R)-2,3-dihydroxypropyl]amino } -6-methoxy-4-phenylisoquinoline-3-carbonitrile,
(+/-)-1-[(2,2-dimethyl-1,3-dioxolan-4-yl)methoxy]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- {[(4S)-2,2-dimethyl-1,3-dioxolan-4-yl]methoxy } -6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- {[(4R)-2,2-dimethyl-1,3-dioxolan-4-yl]methoxy } -6-methoxy-4-phenylisoquinoline-3-carbonitrile,

1- {[(2R)-2,3-dihydroxypropyl]oxy }-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- {[(2S)-2,3-dihydroxypropyl]oxy }-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
(+/-)-1- {[2,3-dihydroxypropyl]oxy }-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- [(3R)-3-hydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- [(3S)-3-hydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
(+/-)-1- [3-hydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1- [cis-3,4-dihydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
6-methoxy-4-phenyl-1-pyrrolidin-1-ylisoquinoline-3-carbonitrile,
6-methoxy-1-(methylsulfonyl)-4-phenylisoquinoline-3-carbonitrile,
6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1,6-dimethoxy-4-phenylisoquinoline-3-carbonitrile,
1-chloro-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-6-methoxy-1-methylisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-1-[(2-hydroxyethyl)amino]-6-methoxyisoquinoline-3-carbonitrile,
1-amino-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-1-[(3-hydroxypropyl)amino]-6-methoxyisoquinoline-3-carbonitrile,
1-(but-3-enyloxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
(+/-)-1-(2,3-dihydroxypropoxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1- [(2R)-2,3-dihydroxypropoxy]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1- [(2S)-2,3-dihydroxypropoxy]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
(+/-)-1-(3,4-dihydroxybutoxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
(+/-)-1- [(3R)-3,4-dihydroxybutoxy]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1- [(3S)-3,4-dihydroxybutoxy]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
(+/-)-1- [(1,4-dioxan-2-ylmethyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,

1-[(1,4-dioxan-(2R)-2-ylmethyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-[(1,4-dioxan-(2S)-2-ylmethyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-6-methoxy-1-[(1-methyl-1H-imidazol-4-yl)methoxy]isoquinoline-3-carbonitrile,
(+/-)-1-(1,3-dioxolan-4-ylmethoxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-(1,3-dioxolan-(4R)-4-ylmethoxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-(1,3-dioxolan-(4S)-4-ylmethoxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-(1,3-dioxan-5-yloxy)-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-1-{[2-hydroxy-1-(hydroxymethyl)ethyl]amino}-6-methoxyisoquinoline-3-carbonitrile,
4-(3-fluorophenyl)-1-(1H-imidazol-5-ylmethoxy)-6-methoxyisoquinoline-3-carbonitrile,
1-[(2R)-2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-[(2S)-2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
(+/-)-1-[(2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-(1H-imidazol-1-yl)-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
6-methoxy-4-phenyl-1-[(pyridin-2-ylmethyl)amino]isoquinoline-3-carbonitrile,
6-methoxy-4-phenyl-1-[(2-pyridin-2-ylethyl)amino]isoquinoline-3-carbonitrile,
(+/-)-1-[(3,4-dihydroxybutyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,
1-[(3R)-(3,4-dihydroxybutyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-

carbonitrile,

1-[(3S)-(3,4-dihydroxybutyl)amino]-4-(3-fluorophenyl)-6-methoxyisoquinoline-3-

carbonitrile,

1-chloro-4-(2-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,

4-(2-fluorophenyl)-6-methoxyisoquinoline-3-carbonitrile,

(+/-)-1-[(2,3-dihydroxypropyl)amino]-4-(2-fluorophenyl)-6-methoxyisoquinoline-3-

carbonitrile,

1-[(2S)-(2,3-dihydroxypropyl)amino]-4-(2-fluorophenyl)-6-methoxyisoquinoline-3-

carbonitrile,

1-[(2R)-(2,3-dihydroxypropyl)amino]-4-(2-fluorophenyl)-6-methoxyisoquinoline-3-

carbonitrile,

(+/-)-6-(difluoromethoxy)-1-{[2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

6-(difluoromethoxy)-1-{[(2S)-2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

6-(difluoromethoxy)-1-{[(2R)-2,3-dihydroxypropyl]amino}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

(+/-)-6-(difluoromethoxy)-1-{[2,3-dihydroxypropyl]oxy}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

6-(difluoromethoxy)-1-{[(2S)-2,3-dihydroxypropyl]oxy}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

6-(difluoromethoxy)-1-{[(2R)-2,3-dihydroxypropyl]oxy}-4-(3-fluorophenyl)isoquinoline-

3-carbonitrile,

1-(4-hydroxypiperidin-1-yl)-6-methoxy-4-phenylisoquinoline-3-carbonitrile,

1-azetidin-1-yl-6-methoxy-4-phenylisoquinoline-3-carbonitrile,

(+/-)-1-[trans-3,4-dihydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,

1-[(3R,4R)-3,4-dihydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile,
1-[(3S,4S)-3,4-dihydroxypyrrolidin-1-yl]-6-methoxy-4-phenylisoquinoline-3-carbonitrile, and
6-methoxy-N-(3-methoxypropyl)-3-methyl-4-phenylisoquinolin-1-amine.

8. (withdrawn) A method of treating a condition in a mammal, the treatment of which is effected or facilitated by $K_v1.5$ inhibition, which comprises administering a compound of Claim 1 in an amount that is effective at inhibiting $K_v1.5$.

9. (withdrawn) A method of Claim 8, wherein the condition is cardiac arrhythmia.

10. (withdrawn) A method of Claim 9, wherein the cardiac arrhythmia is atrial fibrillation.

11. (withdrawn) A method of Claim 9, wherein the cardiac arrhythmia is selected from the group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

12. (withdrawn) A method of preventing a condition in a mammal, the prevention of which is effected or facilitated by $K_v1.5$ inhibition, which comprises administering a compound of Claim 1 in an amount that is effective at inhibiting $K_v1.5$.

13. (withdrawn) A method of Claim 12, wherein the condition is cardiac arrhythmia.

14. (withdrawn) A method of Claim 13, wherein the cardiac arrhythmia is atrial fibrillation.

15. (withdrawn) A method of Claim 13, wherein the cardiac arrhythmia is selected from the group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

16. (withdrawn) A method of Claim 12, wherein the condition is a thromboembolic event.

17. (withdrawn) A method of Claim 16, wherein the thromboembolic event is a stroke.

18. (withdrawn) A method of Claim 12, wherein the condition is congestive heart failure.

19. (currently amended) A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and the compound of Claim 1 or a pharmaceutically acceptable salt thereof.

20. (currently amended) A pharmaceutical composition made by combining the compound of Claim 1 and a pharmaceutically acceptable carrier.

21. (withdrawn) A method of treating cardiac arrhythmia comprising administering a compound of Claim 1 with a compound selected from one of the classes of compounds consisting of antiarrhythmic agents having Kv1.5 blocking activities, ACE inhibitors, angiotensin II antagonists, cardiac glycosides, L-type calcium channel blockers, T-type calcium channel blockers, selective and nonselective beta blockers, endothelin antagonists, thrombin inhibitors, aspirin, nonselective NSAIDs, warfarin, factor Xa inhibitors, low molecular weight heparin, unfractionated heparin, clopidogrel, ticlopidine, IIb/IIIa receptor antagonists, 5HT receptor antagonists, integrin receptor antagonists, thromboxane receptor antagonists, TAFI inhibitors and P2T receptor antagonists.

22. (withdrawn) A method for inducing a condition of normal sinus rhythm in a patient having atrial fibrillation, which comprises treating the patient with a compound of Claim 1.

23. (withdrawn) A method for treating tachycardia in a patient which comprises treating the patient with an antitachycardia device in combination with a compound of Claim 1.